VOL. 556, NOS. 1+2 JOURNAL OF CHROMATOGRAPHY SEPTEMBER 6, 1991

CONTENTS

HONOUR VOLUMES ON THE OCCASION OF THE 60TH BIRTHDAY OF GEORGES A. GUIOCHON

PART I: VOLUME 556

Preface
by B. L. Karger (Boston, MA, USA) XIII

Methods of equilibrium concentration for the gas chromatographic determination of trace volatiles (Review)
by A. G. Vitenberg (Leningrad, USSR) 1

Is chromatography a separation proces? The zonoid answer (Review)
by P. Valentin (St. Symphorien d'Ozon, France) 25

Some aspects of optimization in planar chromatography (Review)
by A.-M. Siouffi (Marseille, France) 81

New approach for calculating ideal chromatograms from arbitrary composite distribution isotherms
by H. Poppe (Amsterdam, Netherlands) 95

Improved computer algorithm for characterizing skewed chromatographic band broadening. I. Method
by W. W. Yau and J. J. Kirkland (Wilmington, DE, USA) 111

Analysis of isotachic patterns in displacement chromatography
by F. D. Antia and C. Horváth (New Haven, CT, USA) 119

Method for characterization of selectivity in reversed-phase liquid chromatography. V. Calibration of the retention scale for chromatographic systems with low concentrations of organic solvents in the mobile phase
by P. Jandera and J. Rozkošná (Pardubice, Czechoslovakia) 145

Analysis of the separability of plate height into overload and intrinsic contributions using the kinetic model of non-linear chromatography
by C. A. Lucy (Chalk River, Canada) and P. W. Carr (Minneapolis, MN, USA) 159

Factor analysis and experimental design in high-performance liquid chromatography. XI. Factor analysis maps and chromatographic information
by M. Righezza (Orléans, France) and J. R. Chrétien (Paris, France) 169

Measurement of partition coefficients by various centrifugal partition chromatographic techniques. A comparative evaluation
by N. El Tayar, R.-S. Tsai, P. Vallat, C. Altomare and B. Testa (Lausanne, Switzerland) . 181

Experimental study on the effect of the sample size on the band profile for a binary mixture showing no competitive interaction
by A. M. Katti (Basle, Switzerland) 195

Prediction of single and binary profiles in overloaded elution chromatography using various semi-ideal models
by A. M. Katti (Knoxville, TN, USA) and M. Czok and G. Guiochon (Knoxville and Oak Ridge, TN, USA) 205

Description of retention mechanism by solvophobic theory. Influence of organic modifiers on the retention behaviour of homologous series in reversed-phase liquid chromatography
by S. Heron and A. Tchapla (Orsay, France) 219

Dispersion in round tubes and its implications for extra-column dispersion
by A. Shankar and A. M. Lenhoff (Newark, DE, USA) 235

Peak-shape analysis and noise evaluation in suppressed ion chromatography for ultra-trace ion analysis
by G. Blo, M. Remelli and F. Pedrielli (Ferrara, Italy), L. Balconi and F. Sigon (Milan, Italy) and F. Dondi (Ferrara, Italy) 249

Investigation of the causes of reduced efficiency in micellar liquid chromatography
by A. Berthod (Villeurbanne, France) and M. F. Borgerding and W. L. Hinze (Winston-Salem, NC, USA) 263

Adsorption isotherms of phenylalanine in a chromatographic column measured simultaneously by system peaks analysis and frontal analysis
by S. Levin and S. Abu-Lafi (Jerusalem, Israel) 277

Optimisation pentaparamétrique de la résolution en chromatographie phase gazeuse par la technique du diagramme à fenêtres. Cas du couplage de deux colonnes
par J. M. Fougnion, C. David, A. Crocq et C. Genty (Paris, France) 287

Quantitative resolution of severely overlapping gas chromatographic peaks. Isothermal and temperature-programmed operation
by J. T. Lundeen and R. S. Juvet, Jr. (Tempe, AZ, USA) 305

Thermodynamics of solution of non-mesomorphic solutes at infinite dilution in the smectic-A, nematic and isotropic phases of *p*-*n*-octyl-*p*′-cyanobiphenyl. A gas–liquid chromatographic study
by S. Ghodbane, G. A. Oweimreem and D. E. Martire (Washington, DC, USA) 317

High-speed gas chromatography. Theoretical and practical aspects
by G. Gaspar (Les Ulis, France) 331

High-performance liquid chromatography on dynamically modified silica. IX. Modification of silica with 3-(N,N-dimethylpalmitylammonium) propansulphonate for reversed-phase chromatography
by S. H. Hanssen and J. Tjørnelund (Copenhagen, Denmark) 353

Chromatographic characterization of ion exchangers for high-performance liquid chromatography of proteins. I. Chromatographic determination of loading capacity for low- and high-molecular mass anions
by D. Bentrop and H. Engelhardt (Saarbrücken, Germany) 363

Synthesis of chemically bonded liquid crystals for high-performance liquid chromatography. New phases via the organochlorosilane pathway
by J. J. Pesek, M. A. Vidensek and M. Miller (San Jose, CA, USA) 373

Hydroquinone oxidation kinetics in adsorptive liquid chromatographic beds
by C.-Y. Jeng and S. H. Langer (Madison, WI, USA) 383

Impact of acid/hydrothermal treatment on pore structural chromatographic properties of porous silicas. I. The conventional approach
by K. K. Unger and K. D. Lork (Mainz, Germany) and B. Pfleiderer, K. Albert and E. Bayer (Tübingen, Germany) 395

Effect of silanol groups on heat-treated silicas by calcination and retention behaviour in high-performance liquid chromatography
by M. Okamoto (Gifu, Japan), K. Nobuhara (Aichi, Japan) and K. Jinno (Toyohashi, Japan) 407

Use of the reordening/resolvation of alkyl-modified silica to characterize the microscopic heterogeneity of silica via liquid chromatography
by R. K. Gilpin and L. Wu (Kent, OH, USA) 415

New solid adsorbents for the separation of lower hydrocarbons and permanent gases. II. Ammonium molybdophosphate
by V. S. Nayak (Guelph, Canada) 425

Dynamic gas–solid chromatographic techniques for characterizing carbon molecular sieves
by W. R. Betz and S. J. Lambiase (Bellefonte, PA, USA) 433

Chromatographic determination of the physico-chemical parameters of adsorption on active carbons
by Z. Witkiewicz, H. Grajek and J. Choma (Warsaw, Poland) 441

Influence of solute size and the non-polar interaction term on the selection of test solutes for the classification of stationary phase selectivity in gas chromatography
by T. O. Kollie and C. F. Poole (Detroit, MI, USA) 457

Gas chromatographic comparative study of Superox 20M immobilized in different ways
by E. Fernández-Sánchez, A. Fernández-Torres, J. A. García-Domínguez and M. D. Salvador-Moya (Madrid, Spain) 485

Fluorescence detection in liquid chromatography with an intensified diode-array detector
by T. L. Cecil and S. C. Rutan (Richmond, VA, USA) 495

PART II: VOLUME 557

Foreword
by M. Martin (Paris, France) XIII

Split injection into a capillary column at very low split ratios
by S. Wičar (Prague, Czechoslovakia) 1

On-line electrochemical reagent generation for liquid chromatography with luminol-based chemiluminescence detection
by O. M. Steijger (Utrecht, Netherlands), G. J. De Jong (Weesp, Netherlands) and J. J. M. Holthuis and U. A. Th. Brinkman (Amsterdam, Netherlands) 13

Quantitative determination limit in chromatography: computer-based simulations
by M. Z. El Fallah and M. Martin (Paris, France) 23

Laser-excited fluorescence detection of gas-phase chromatography eluates
by S. J. Hein and E. H. Piepmeier (Corvallis, OR, USA) and L. C. Thomas (Seattle, WA, USA) 39

Separation of *trans*/*cis*-α- and β-carotenes by supercritical fluid chromatography. I. Effects of temperature, pressure and organic modifiers on the retention of carotenes
by M.-C. Aubert, C. R. Lee and A. M. Krstulović (Meudon-la-Forêt, France) and E. Lesellier, M.-R. Péchard and A. Tchapla (Orsay, France) 47

Separation of *trans*/*cis*-α- and β-carotenes by supercritical fluid chromatography. II. Effect of the type of octadecyl-bonded stationary phase on retention and selectivity of carotenes
by E. Lesellier and A. Tchapla (Orsay, France) and M.-R. Péchard, C. R. Lee and A. M. Krstulović (Meudon-la-Forêt, France) 59

Magnitude of the diffusion coefficient anomaly in the critical region and its effect on supercritical fluid chromatography
by K. D. Bartle, D. L. Baulch, A. A. Clifford and S. E. Coleby (Leeds, UK) 69

Packed column supercritical fluid chromatography with carbon dioxide–polar modifiers. Influence of carbon dioxide density on retention
by A. Villermet, D. Thiébaut, M. Caude and R. Rosset (Paris, France) 85

Quantitative aspects of the determination of compounds with widely varying polarity using capillary supercritical fluid chromatography
by L. Karlsson, L. Mathiasson, J. Åkesson and J. Å. Jönsson (Lund, Sweden) 99

Bile salt surfactants in micellar electrokinetic capillary chromatography. Application to hydrophobic molecule separations
by R. O. Cole and M. J. Sepaniak (Knoxville, TN, USA), W. L. Hinze (Winston-Salem,NC, USA) and J. Gorse and K. Oldiges (Barea, OH, USA) 113

Electroosmotically driven electrochromatography of anions having similar electrophoretic mobilities by ion pairing
by W. D. Pfeffer and E. S. Yeung (Ames, IA, USA) 125

Flip–flop elution concept in preparative liquid chromatography
by H. Colin and P. Hilaireau (Champigneulles, France) and M. Martin (Paris, France) . . 137

Simulated distillation of distillates on capillary columns: influence of the polarity of the stationary phase
by M. Dorbon, S. Lamaison and A. Chevalier (Vernaison, France) 155

Chiral π-donor stationary phases with (*R*)-N-pivaloylnaphthylethylamide groups for direct enantiomer separation by gas, liquid and supercritical fluid chromatography
by R. Brügger, P. Krähenbühl, A. Marti, R. Straub and H. Arm (Berne, Switzerland) . . 163

Chiral stationary phase designed for β-blockers
by W. H. Pirkle and J. A. Burke, III (Urbana, IL, USA) 173

Enantiomeric distribution and $^{13}C/^{12}C$ isotope ratio determination of γ-lactones: appropriate methods for the differentiation between natural and non-natural flavours?
by S. Nitz, H. Kollmannsberger, B. Weinreich and F. Drawert (Freising-Weihenstephan, Germany) 187

Coupled column chromatography in chiral separations: systems employing β-cyclodextrin phases for chiral separation
by A. M. Rizzi and C. Plank (Vienna, Austria) 199

Influence of counter-ion inclusion complexation on the quality of cyclodextrin-supported separations in isotachophoresis
by I. Jelínek, J. Snopek and E. Smolková-Keulemansová (Prague, Czechoslovakia) . . . 215

Enantiomer separation by chiral-phase liquid chromatography of urethane derivatives of natural diacylglycerols previously fractionated by reversed-phase liquid chromatography
by B. G. Semporé and J. A. Bézard (Dijon, France) 227

Capillary gas chromatography of C_5–C_{13} branched alkynes on squalane and liquid crystal stationary phases
by L. Soják, P. Farkaš and I. Ostrovský (Bratislava, Czechoslovakia), J. Janák (Brno, Czechoslovakia) and J. R. Chrétien (Orléans and Paris, France) 241

Gas chromatography and gas chromatography–mass spectrometry study of hydrocarbons in Vlasta oil (Adriatic Basin) as the basis for geochemical interpretation
by A. Alajbeg, A. Todorić, S. Švel-Cerovečki and M. Šušterčić (Zagreb, Yugoslavia) . . . 255

Identification of chlorophyll transformation products in a lake sediment by combined liquid chromatography–mass spectrometry
by C. B. Eckardt, B. J. Keely and J. R. Maxwell (Bristol, UK) 271

Characterization of a tryptic digest by high-performance displacement chromatography and mass spectrometry
by J. Frenz, C. P. Quan, W. S. Hancock and J. Bourell (South San Francisco, CA, USA) 289

Application of capillary zone electrophoresis to the characterization of multiple antigen peptides
by A. Pessi, E. Bianchi, L. Chiappinelli, A. Nardi and S. Fanali (Rome, Italy) 307

Separation and indirect detection of amino acids as acetylated derivatives
by D. Yuan and D. J. Pietrzyk (Iowa City, IA, USA) 315

Dye–ligand affinity partitioning of lactate dehydrogenase isoenzymes
by J. Kirchberger and G. Kopperschläger (Leipzig, Germany) and M. A. Vijayalakshmi (Compiègne, France) 325

High-performance liquid chromatography of amino acids, peptides and proteins. CXIV. Protein interactions with porous coulombic sorbents: comparison of experimental findings with predictions of several adsorption models
by A. Johnston and M. T. W. Hearn (Clayton, Australia) 335

Performances and limits of plasma desorption mass spectrometry in the primary structure determination of proteins
by J.-M. Schmitter (Palaiseau, France) 359

Adsorption–desorption isotherm hysteresis of β-lactoglobulin A with a weakly hydrophobic surface
by S. Lin, R. Blanco and B. L. Karger (Boston, MA, USA) 369

High-performance liquid chromatography–atmospheric pressure ionization mass spectrometry of gymnemic acids
by T. Imoto (Yonago, Japan), F. M. Yamamoto (Kyoto, Japan), A. Miyasaka (Yonago, Japan) and H. Hatano (Yokosuka and Kyoto, Japan) 383

Isolation and determination of flavonol glycosides from *epilobium* species
by I. Slacanin, A. Marston and K. Hostettmann (Lausanne-Dorigny, Switzerland) and N. Delabays and C. Darbellay (Conthey, Switzerland) 391

Influence of mobile phase composition on evaluation of lipophilicity by partition chromatography
by M. Kuchař, E. Kraus and M. Jelínková (Prague, Czechoslovakia) 399

Characterization and determination of organic compounds in the mutagenic XAD-2 extracts of drinking water
by S. Onodera (Tokyo, Japan) 413

Analysis of industrial solvent mixtures in water using a miniature purge-and-trap device with thermal desorption and capillary gas chromatography–mass spectrometry
by A. P. Bianchi and M. S. Varney (Southampton, UK) and J. Phillips (Milton Keynes, UK) 429

Analysis of nucleotides by high-performance liquid chromatography with phosphorus-selective detection
by W. Hu, H. Haraguchi and T. Takeuchi (Nagoya, Japan) 441

Structure determination of sesquiterpenes in Chinese vetiver oil by gas chromatography–tandem mass spectrometry
by N. Sellier and A. Cazaussus (Paris, France), H. Budzinski (Talence, France) and M. Lebon (Paris, France) 451

Retention behaviour of polycyclic aromatic hydrocarbons on a liquid-crystal bonded phase in reversed-phase liquid chromatography
by K. Jinno, Y. Saito and R. Malhan née Chopra (Toyohashi, Japan), J. J. Pesek (San Jose, CA, USA) and J. C. Fetzer and W. B. Biggs (Richmond, CA, USA) 459

Theoretical analysis of measurement of building pollution parameters by gas chromatography
by N. A. Katsanos and Ch. Vassilakos (Patras, Greece) 469

Optimization of the gas chromatographic analysis of a standard mixture of polychlorodibenzo-*p*-dioxins and polychlorodibenzofurans
by J. Tabera, B. Jiménez, L. M. Hernández and M. J. González (Madrid, Spain) 481

Confirmation of the structure of by-products in the synthesis of Modafinil by liquid chromatography–mass spectrometry
by Th. Becue (Malabry, France) and M. Broquaire (Maisons-Alfort, France) 489

Study of salt hydrates by gas–solid chromatography
by T. A. Mills and C. S. G. Phillips (Oxford, UK) 495

Analyse par chromatographie en phase gazeuse de la réaction de macrolactonisation de Mukaiyama
par K. Halvorsen, J. C. Ader, I. Rico et A. Lattes (Toulouse, France) 501

Cyclooxygenase and lipoxygenase arachidonic acid metabolism by monocytes from human immune deficiency virus-infected drug users
by I. Ramis, J. Roselló-Catafau and G. Gómez (Barcelona, Spain), J. M. Zabay and E. Fernández Cruz (Madrid, Spain) and E. Gelpí (Barcelona, Spain) 507

Structural investigation of oligomeric *n*-octylsilyl reversed phases
by S. O. Akapo and C. F. Simpson (London, UK) 515

Chromatographic trace analysis of some organic compounds in the environment using derivatization–sorption concentration techniques. I. Gas chromatographic analysis of acrylates in air by J. Churáček, H. Pechová, A. Horna, R. Kotrla and K. Ventura (Pardubice, Czechoslovakia) 523

Author Index Vols. 556 and 557 531

In articles with more than one author, the name of the author to whom correspondence should be addressed is indicated in the article heading by a 6-pointed asterisk (*)